

wherein said second holding member includes a plurality of flanges
extending in a direction perpendicular to the optical axis, each flange abutting against one
of said plurality of abutting faces of said first holding member, each flange including a
plurality of second through hole portions for receiving said plurality of coupling
members.--

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REMARKS

The present application is a continuation prosecution application (CPA) of
US Patent Application No. 09/236,339.

The claims now pending in the application are Claims 1 to 3, 6 to 11 and 19
to 22. The independent claims are Claims 1, 11 and 19 to 22. Claims 4 and 5 have been
canceled. Claims 1, 6 and 11 have been amended. Claim 19 to 22 are newly presented.

Claims 1 to 11 stand rejected under 35 U.S.C. § 103(a), as unpatentable
over Figure 1 and the corresponding disclosure at pages 2 to 5 of the present application
(Applicants' "Admitted Prior Art"), in view of U.S. Patent No. 5,700,103 (Tsai) and U.S.
Patent No. 4,105,282 (Schael). Reconsideration and withdrawal of the rejection
respectfully are requested in view of the above amendments and the following remarks.

Initially, Applicants' attorney gratefully acknowledges the courtesies
extended to him by the Examiner in granting a personal interview on November 29, 2001.
In that interview, Applicants' attorney discussed various novel features of the present
invention, proposed alternative draft claims, and distinguished the claimed invention over
the cited art. No agreement was reached with respect to the pending claims. However, the

Examiner suggested that the present application discloses additional features not recited in the pending claims or disclosed in the cited art.

The rejection of the claims over the cited art respectfully is traversed. Nevertheless, without conceding the propriety of the rejection, pending independent Claims 1 and 11 have been amended to recite the additional feature of a substantially annular “deformation restricting member”, and prior dependent Claims 4 and 5 have been canceled in favor of amended Claim 1. Support for the proposed amendments may be found in the original application. No new matter has been entered.

In each aspect (Claims 1 and 11), the claimed invention is directed to an optical-element holding mechanism including a coupling mechanism for securely coupling two holding members while accurately performing alignment of the optical axes of the two optical elements. As disclosed in greater detail in the present application, in a preferred embodiment, the novel arrangement of locating a plurality of urging members (e.g., spring washers 120) between a respective plurality of coupling member (e.g., screw 145) and a second holding member (e.g., sixth lens unit holding frame 118), that is, on the side of the first holding member (e.g., third lens unit holding frame 109) opposite the side contacting the second holding member (118), and a substantially annular deformation restricting member (119) between the plurality of coupling members (145) and the first holding member (109) provides a significant improvement over prior art coupling structures in precision during assembly. Compare, Figure 3 with Figure 1.

Applicants submit that the prior art fails to anticipate the present invention. Moreover, Applicants submit that there are differences between the subject matter sought

to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious at the time the invention was made to one of ordinary skill in the art.

Figure 1 of the subject application discloses a system including a first lens tube 3, which holds a first lens 5, a second lens tube 6, which holds a second lens 7, and a coupling member (screw) 9. However, as acknowledged in the Official Action, the conventional structure illustrated in Figure 1 of the subject application fails to disclose or suggest at least the above recited features of the present invention. Nowhere does the Figure 1 system disclose or suggest the features of a plurality of urging members located between a respective plurality of coupling members and a second holding member, and a substantially annular deformation restricting member disposed between the plurality of coupling members and a first holding member, so as to prevent deformation of the first holding member and permit accurate alignment of first and second optical axes of the first and second optical members during coupling of the first and second holding members, as disclosed and claimed in the subject application. Rather, in the disclosed structure of Figure 1, a composite member 8 (including elements 8a, 8b, 8c), is disposed remote from the coupling member 9 during alignment/ assembly of the first and second optical holding elements.

The Tsai '103 patent relates to a mounting structure, and discloses a mounting structure including a locking plate disposed between a mount and a frame structure. As discussed at the personal interview, the Tsai '103 patent was cited for its disclosure of a mounting structure that uses a washer (20) between a coupling member (screw 30) and a mount B for urging and pressing the mount toward a frame structure C; the Tsai '103 patent further was cited for its disclosure of a mounting structure including a

locking plate 10 which allegedly/inherently restricts deformation of mount B during coupling. However, Applicants submit that the Tsai '103 patent fails to disclose or suggest at least the above-described features of the present invention. In particular, Applicants submit that the Tsai '103 patent fails to disclose or suggest the recited combination of features of a first holding member, a second holding member, a substantially annular deformation restricting member, a plurality of urging members, and a plurality of coupling members. In particular, the Tsai '102 patent teaches a structural arrangement locating a locking plate 10, including an elastic portion 11, between the contacting surfaces of a "first" mounting structure (frame structure C) and a "second" mounting structure (mount B), so as to fix the "second" mounting structure at a location remote from the "first" mounting structure (providing a variable height/leveling function). Thus, locking plate 10 is not believed to provide any deformation restricting function with respect to the "first" mounting structure (frame structure C). Nor is the Tsai '103 patent understood to add anything to the disclosure of Figure 1 and the corresponding text of the present application that would make obvious the claimed invention

The Schael '282 patent relates to an optical sight, and discloses an optical sighting device for firearms. As discussed in the personal interview, the Schael '282 patent was cited for its disclosure of an optical system using the combination of a plurality of coupling members (pre-loading screws 22, 23, 24) and deformable/resilient spring members (parallel flat springs 13, 14, 15) for mounting an optical element and aligning an optical axis of the optical element, e.g., relative to a line of sight (rifle sight); the Schael '282 patent thereby allegedly provides motivation to combine the features of the Tsai '103 patent (which relates to a mounting structure in a non-optical environment), to the structure

of Figure 1 of the present application (an optical mounting structure). However, it was agreed that the Schael '282 patent fails to disclose or suggest at least the above-discussed combination of structural features of the claimed invention. Moreover, since the Tsai '103 patent fails to remedy the feature of amended Claims 1 and 11, as discussed above, nor is the Schael '282 patent believed to add anything the above-discussed art that would make obvious the claimed invention.

For the above reasons, Applicants submit that independent Claims 1 and 11 are allowable over the cited art.

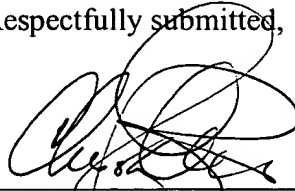
Claims 2, 3 and 6 to 10 depend from Claim 1, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of base Claim 1, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Claims 19 to 22 have been added to provide Applicants with an additional scope of protection commensurate with the disclosure. Claims 19 to – recite features similar to features the pending claims and are believed allowable for the same reasons. Individual consideration of the newly presented claims respectfully is requested.

Applicants believe that the present Amendment is responsive to each of the points raised by the Examiner in the outstanding Official Action and the personal interview, and submit that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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VERSION WITH MARKS TO SHOW CHANGES MADE TO CLAIMS

1. (Twice Amended) An optical-element holding mechanism comprising:
- a first holding member arranged to hold a first optical element;
 - a second holding member arranged to hold a second optical element;
 - a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in the process of being coupled; [and]
 - a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and
 - a deformation restricting member, having a substantially annular shape, disposed between said plurality of coupling members and said first holding member and arranged to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member.

6. (Twice Amended) An optical-element holding mechanism according to claim 1 [4], wherein each urging member is disposed between a coupling member and said deformation restricting member.

11. (Twice Amended) An optical apparatus comprising:
an apparatus body; and
an optical-element holding mechanism including:
a first holding member arranged to hold a first optical element;
a second holding member arranged to hold a second optical element;
a plurality of coupling members arranged to couple said first holding member and said second holding member, and to permit relative positions of said first holding member and said second holding member to be varied in the process of being coupled; [and]
a plurality of urging members respectively disposed between each of said plurality of coupling members and said second holding member, and arranged to urge and press said second holding member against said first holding member at least when said plurality of coupling members are in the process of coupling said first holding member and said second holding member through alignment of respective optical axes of the first optical element and the second optical element; and
a deformation restricting member, having a substantially annular shape, disposed between said plurality of coupling members and said first holding member and arranged

to restrict deformation of said first holding member while relative positions of said first holding member and said second holding member are in the process of being varied, when said plurality of coupling members are in the process of coupling said first holding member and said second holding member.

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